REMARKS

In support of the enclosed Request for Continued Examination, Applicants hereby submit this Preliminary Amendment. Applicants address issues raised in the Office Action dated June 9, 2003. Applicants have cancelled Claims 1, 3-11, 13-18, and 21-23 and introduced new Claims 50-74. Applicants appreciate the Examiner's courtesy shown during the Examiner's visit held on September 15, 2003.

Applicants' Invention

Applicants invention eliminates one or more, preferably all of the problems associated with traditional double salt reduction and other prior art processes (See page 5, second full paragraph). For instance, the self-sustaining reaction zone position used in Applicants' process and its temperature can be efficiently controlled by maintaining a consistent (constant) feeding rate, ignition (furnace) temperature, and inert carrier gas flow rate (See page 6, lines 21-23). In one embodiment, the powders made by the continuous magnesium reduction process of Applicants' invention have higher calculated surface areas and significantly different particle size distributions, as quantified by the D values, than the powders made by the batch magnesium reduction or sodium reduction processes (See page 12, first full paragraph). The self-sustaining reaction generated in the reactor generates sufficient energy for the reduction reaction to propagate, even if the furnace does not provide enough energy to propagate the reaction. (See page 11, Example 3, "In other words, the furnace was not supplying energy to the system. This is strong evidence that a stable self-sustaining reaction exists in the reactor. ") The invention can be practiced such that contact of the products is minimized with the reactor wall such that allows "the free flow of the reactants and products, thereby minimizing interaction of the product particles" (See page 9, third full paragraph). As can be seen from Fig. 3, the temperature of the reaction zone remains substantially constant at different feeding rates. Advantageously, Applicants' invention leads to a significant decrease in the residence time in the reaction zone, which in turn affects the completion of the reaction (See page 7, third full paragraph).

More particularly, Applicants' invention relates to a method that continuously feeds, into a furnace, (i) a free-flowing oxide particle component selected from the

group consisting of metal oxide particles, metal alloy oxide particles, and mixtures thereof, and (ii) a free-flowing reducing agent selected from the group consisting of magnesium, aluminum, calcium, and mixtures thereof. The method ignites the oxide particle component and the reducing agent at a reaction zone, starts a reaction that is sufficiently exothermic to form a high temperature, self-sustaining flash; and produces a free-flowing reduced oxide powder selected from the group consisting of refractory metal powders, refractory metal alloy powders, refractory metal suboxide powders, refractory metal alloy suboxide powders, and mixtures thereof. In one embodiment, the furnace has a first temperature (furnace temperature) at a location that is not the reaction zone and the flash is at a second temperature(reaction zone temperature) that is greater than the first temperature (See Fig. 3). The free-flowing oxide particle component and the free-flowing reducing agent are introduced at a substantially constant rate and the second temperature remains substantially constant. The invention also encompasses other embodiments, as indicated in the enclosed claims.

Applicants' invention, as encompassed by new Claims 50-74, is patentable over U.S. Pat. No. 2,516,863 (Gardner), U.S. Pat. No. 6,136,062 (Loffenholtz) or the prior art, singly or in combination with each other.

One of ordinary skill in the art familiar with the prior art and the knowledge generally available in the art at the time of the invention would not have been motivated to modify any of the reference, singly or in combination with another other reference, practice Applicants' invention containing all of the limitations of the claims and/or expect the results Applicants' invention have obtained.

Drawings

Applicants hereby submit a new Fig. 2. in view of the remarks made previously.

In view of the foregoing amendments and remarks, allowance of the pending claims is earnestly requested.

Respectfully submitted,

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